

1. A method for reducing exhaust emissions during cold start of an internal combustion engine, the engine being coupled to a starter motor and an exhaust gas treatment device, comprising:
- 5 providing assist to the engine by the starter motor to meet a demanded power when a temperature of the exhaust gas treatment system is less than an operating temperature of the exhaust gas treatment device.
2. The method of claim 1 wherein power output from the starter motor is regulated to meet existing and impending power demands by drive system auxiliary devices.
3. The method of claim 1, further comprising: operating the starter motor as a generator after the operating temperature of the exhaust gas treatment device has been reached.
- 15 4. The method of claim 1, further comprising: retarding spark timing of the engine.
- 20 5. The method of claim 1, further comprising: heating the exhaust gas treatment device by electric heater coupled to the exhaust gas treatment device.
- 25 6. The method of claim 1, further comprising delaying a shifting operation of an automatic transmission coupled to the internal combustion engine.
7. A method for reducing exhaust emissions during cold start of an internal combustion engine, the engine being coupled to a starter motor and an exhaust gas treatment device, comprising:
- 30 supplying fuel to the internal combustion engine when an engine rotational speed substantially exceeds idle speed.
8. The method of claim 7, further comprising: retarding spark timing of the engine.
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9. The method of claim 7, further comprising: heating the exhaust gas treatment device by electric heater coupled to the exhaust gas treatment device.

5 10. The method of claim 7, further comprising delaying a shifting operation of an automatic transmission coupled to the internal combustion engine.

10 11. An engine system comprising:
 an internal combustion engine;
 a starter motor coupled to said engine;
 an exhaust gas treatment device arranged in an engine exhaust of
said engine; and
 a control unit electronically coupled to said engine and said starter
15 motor, said control unit causing said starter motor to provide power to reduce
a power provided the said engine.

20 12. The system of claim 11 wherein said electronic control unit causes spark timing of the engine to be retarded.

 13. The system of claim 11 wherein said electronic control unit causes
an electric heater coupled to the exhaust gas treatment device to heating the
exhaust gas treatment device.

25 14. The system of claim 11 wherein said electronic control unit delays a shifting operation of an automatic transmission coupled to the internal combustion engine.

30 15. An engine system comprising:
 an internal combustion engine;
 a starter motor coupled to said engine;
 an exhaust gas treatment device arranged in an engine exhaust of
said engine; and
 a control unit electronically coupled to said engine and said starter
35 motor, said control unit withholding supply of fuel to the internal combustion
engine when an engine rotational speed is less than idle speed.

16. The system of claim 15 wherein said electronic control unit causes spark timing of the engine to be retarded.

5 17. The system of claim 15 wherein said electronic control unit causes an electric heater coupled to the exhaust gas treatment device to heating the exhaust gas treatment device.

10 18. The system of claim 15 wherein said electronic control unit delays a shifting operation of an automatic transmission coupled to the internal combustion engine.